Water Conditions Summary

Mar 10, 2010

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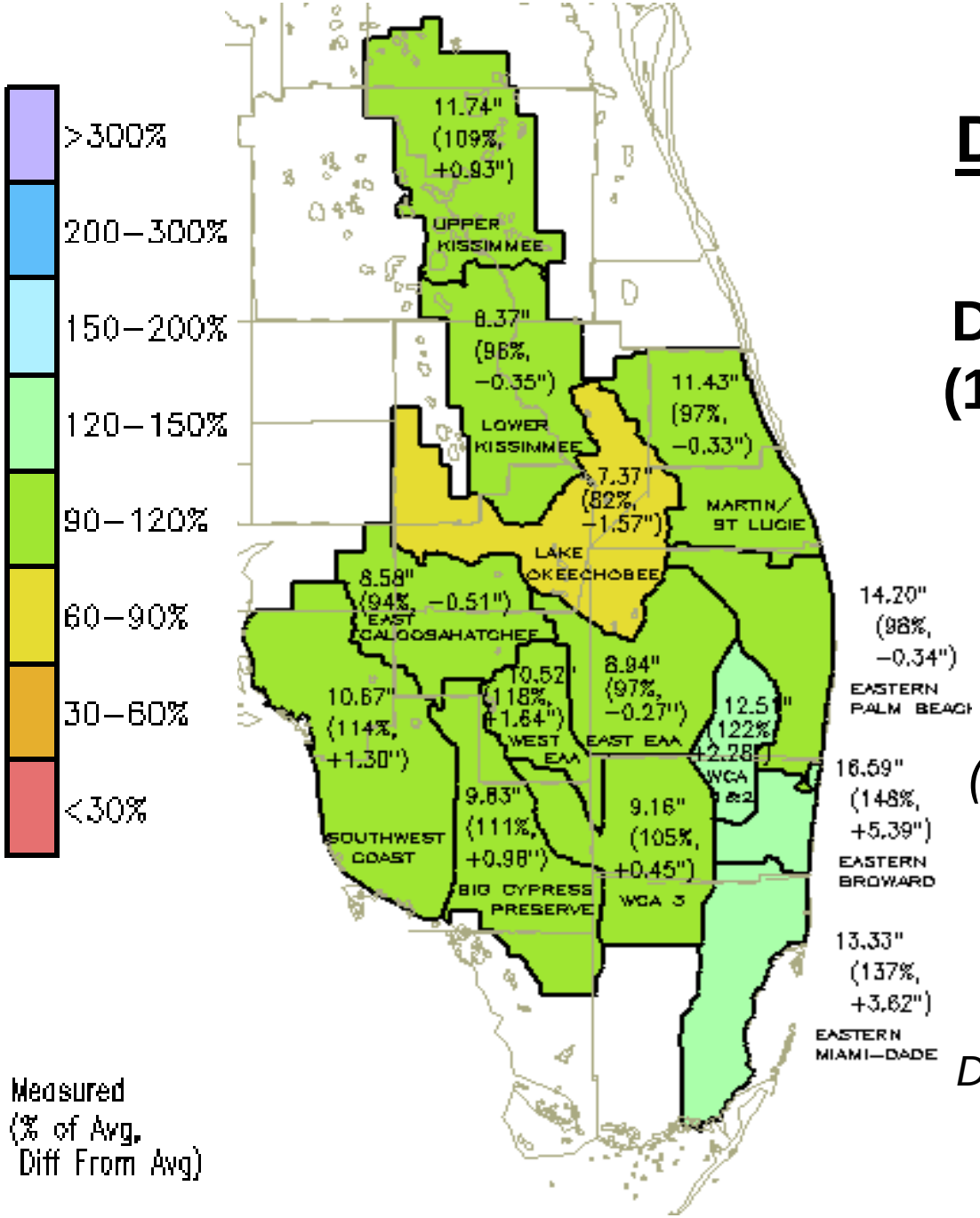
Operations Control & Hydro Data Management Department
South Florida Water Management District

Governing Board Workshop Agenda Item 8A & 8B

SFWMD 2010
Dry Season Rainfall
Nov 2 - Mar 8

DISTRICT-WIDE: 10.34”
(106% of Avg, or +0.57“)



1950-2008
Dry Season (Nov-May)
Median 15.3”

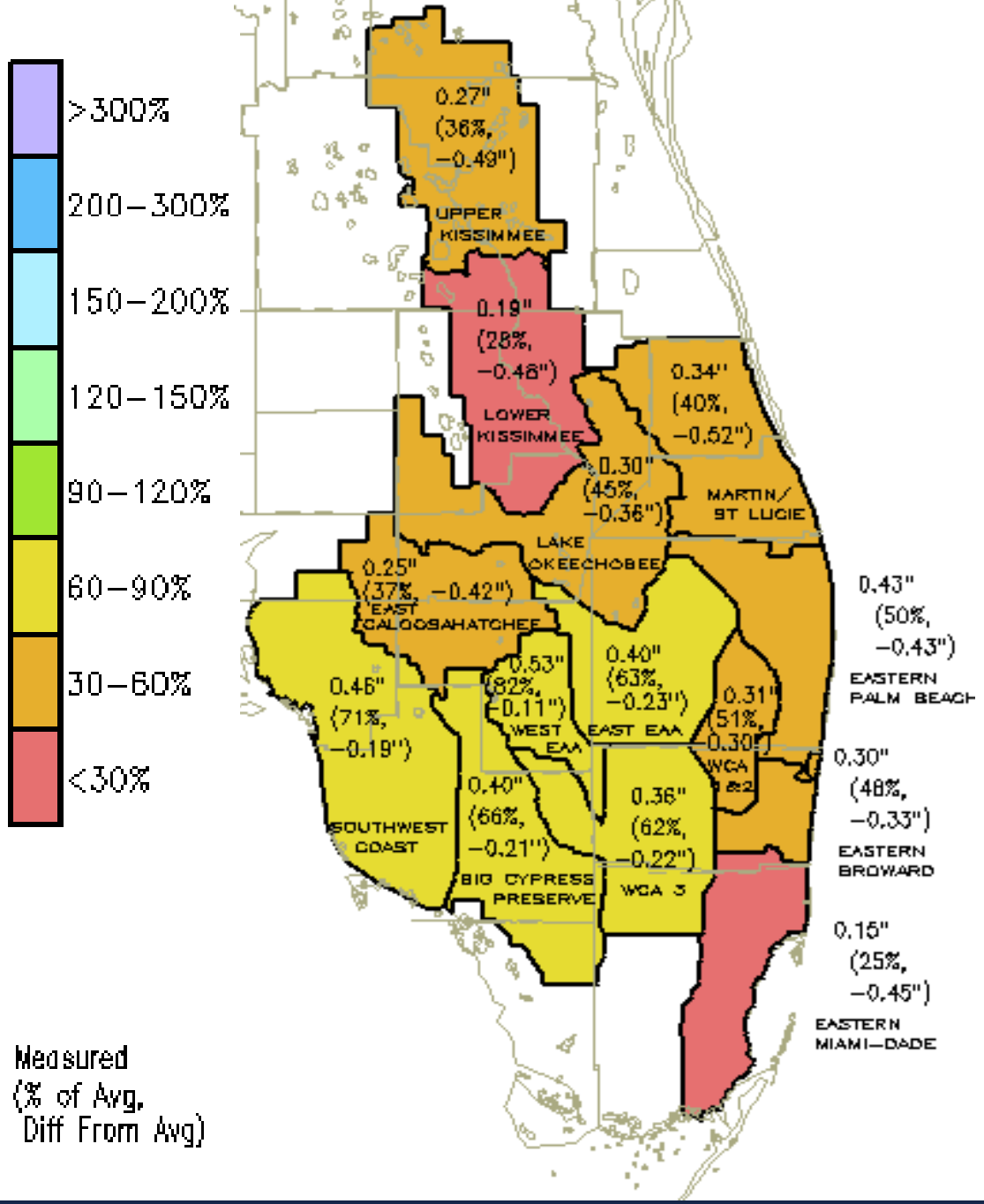
(20.6” during El Nino years)

Recall Last Year
Nov-Apr Rainfall was 4.5”

Driest since records began in 1932

SFWMD 2010
March Rainfall
March 2-8

DISTRICT-WIDE:
0.34” (50%, - 0.34”)



- *All basins received less than average rainfall so far*
- *Average March Rain = 3.0”*
- *Next significant Rainfall forecast for Thurs-Fri (~1”)*
- *More cold weather coming later this month*

Record Cold 2010 Winter

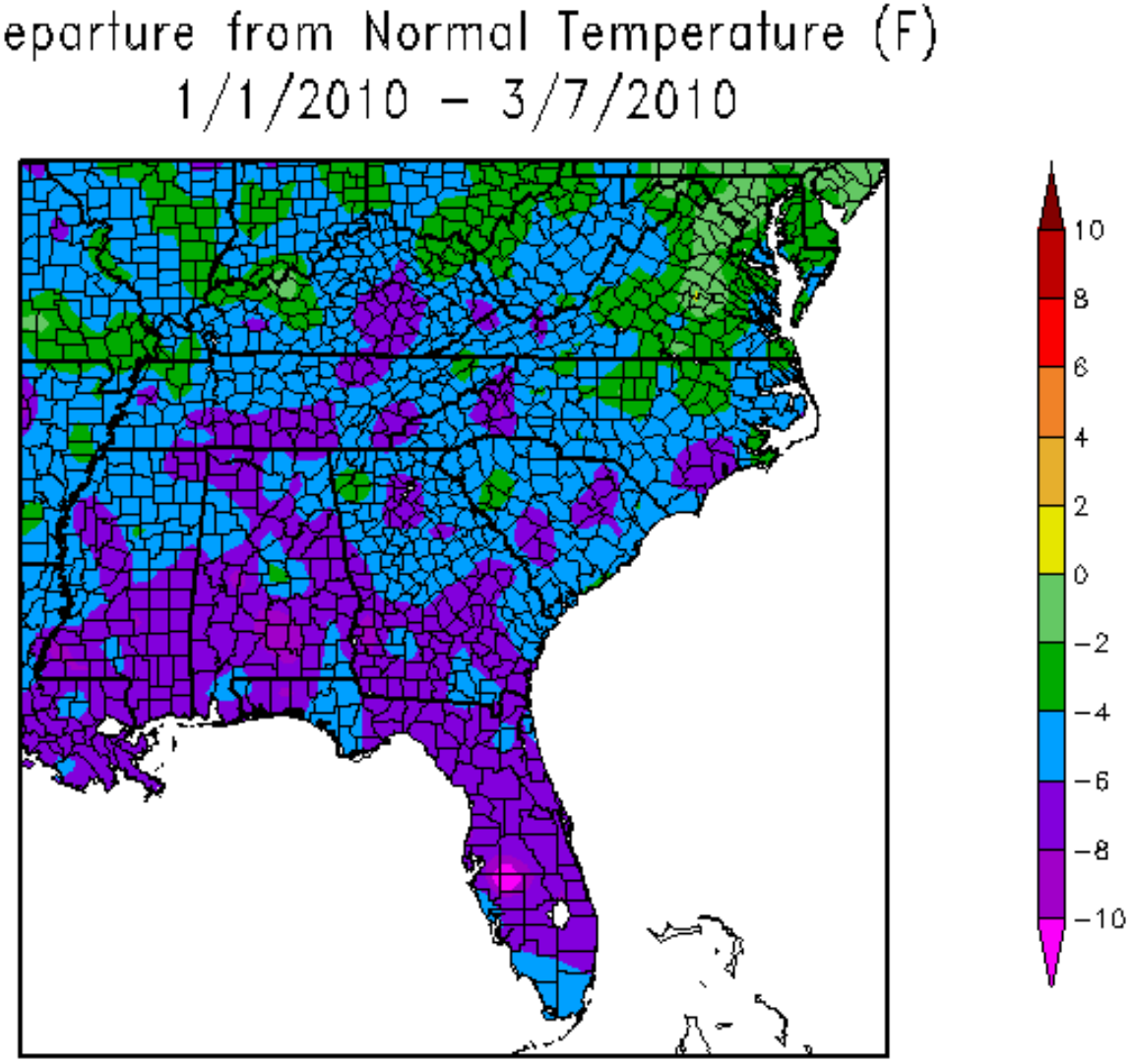
- Coldest Winter since 1981

- Most of SFWMD experienced 6-8 degrees below average

- The area west and northwest of Lake O averages about 1-3 nights of freezing temperatures/year.

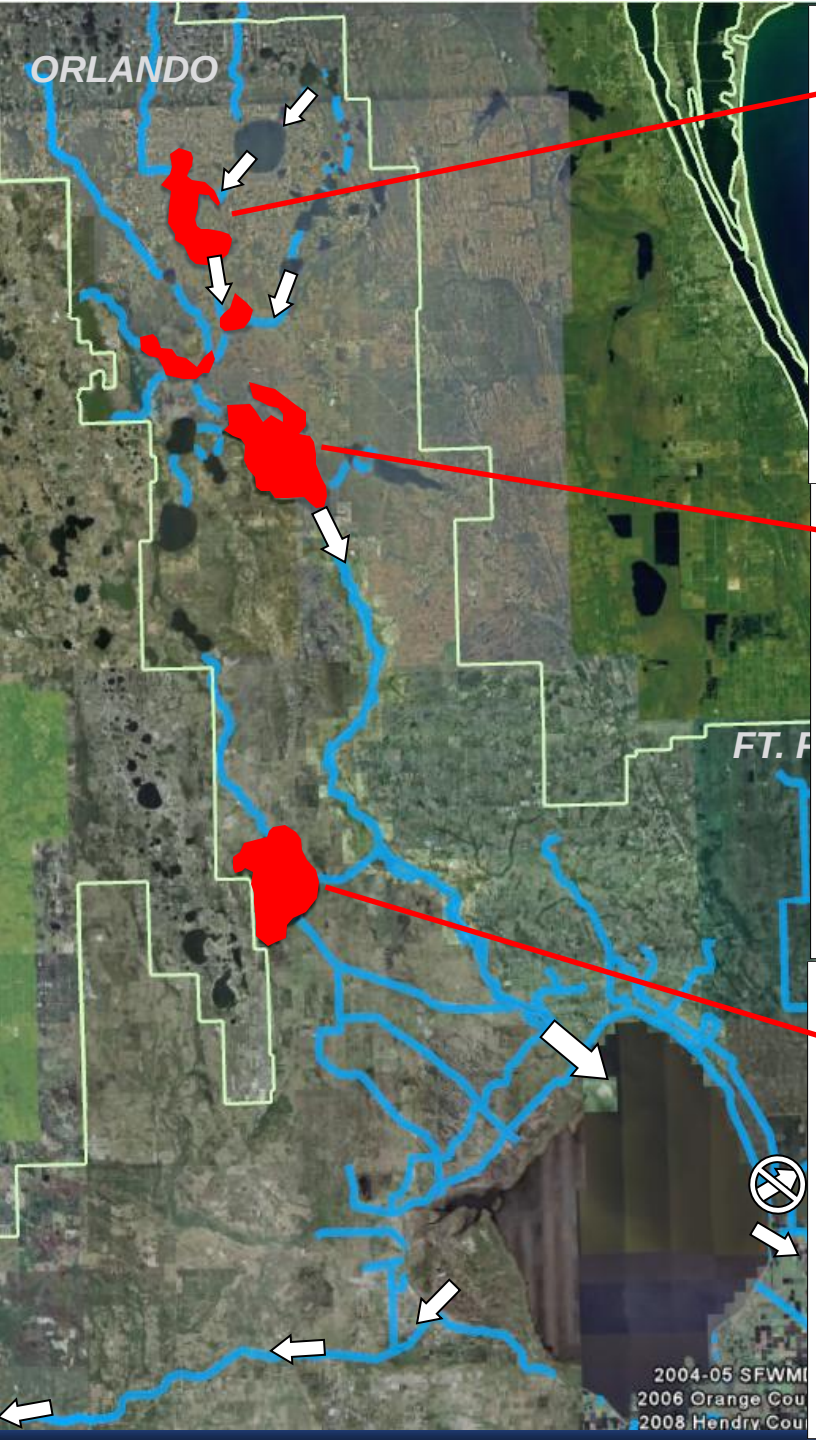
- This year:

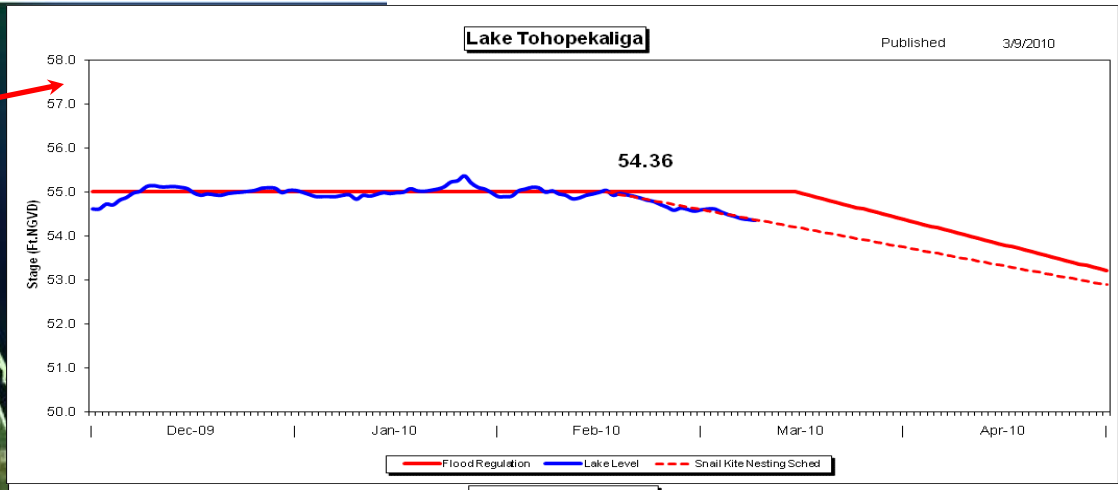
Sebring: 7
Arcadia: 9
Palmdale: 9
Clewiston: 4
(most occurred in early Jan)

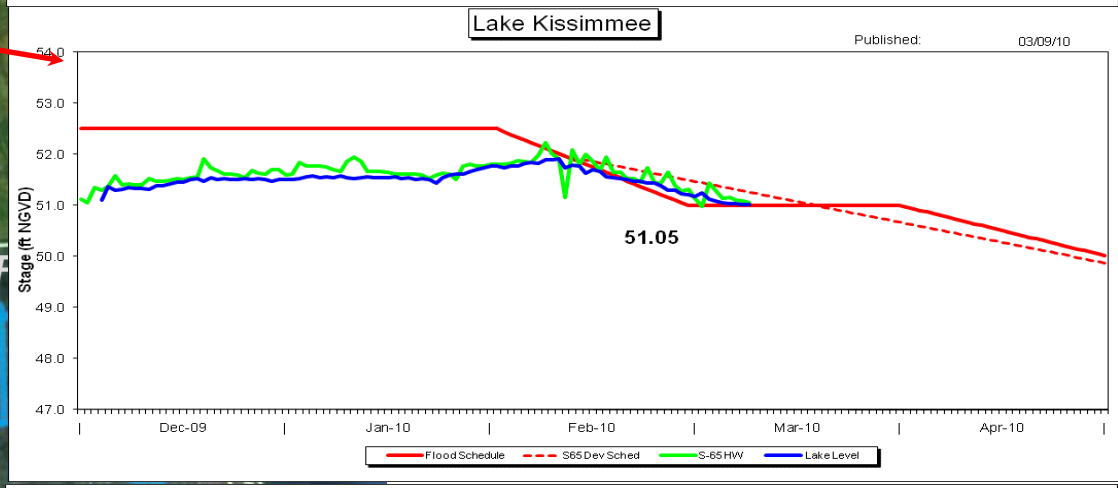


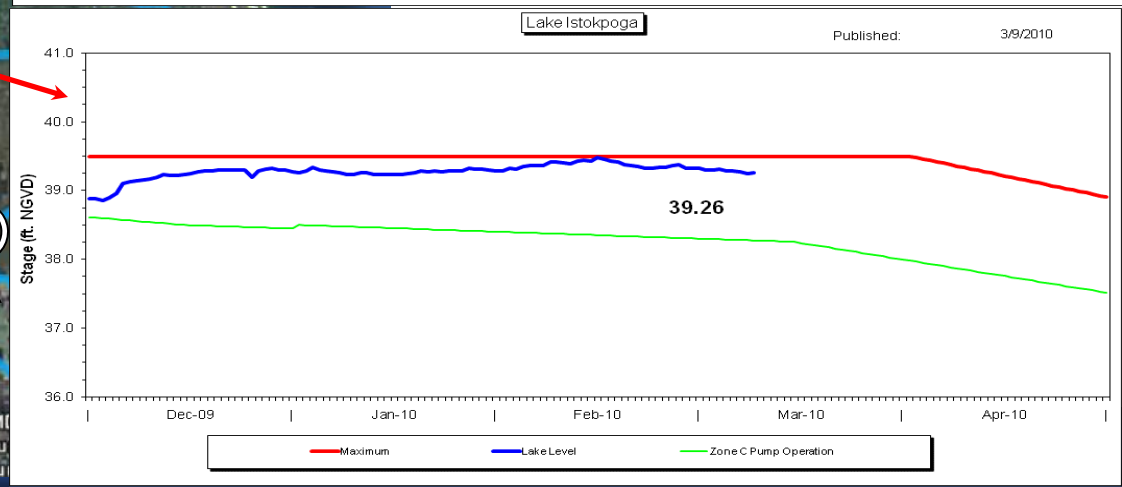
Generated 3/8/2010 at HPRCC using provisional data.

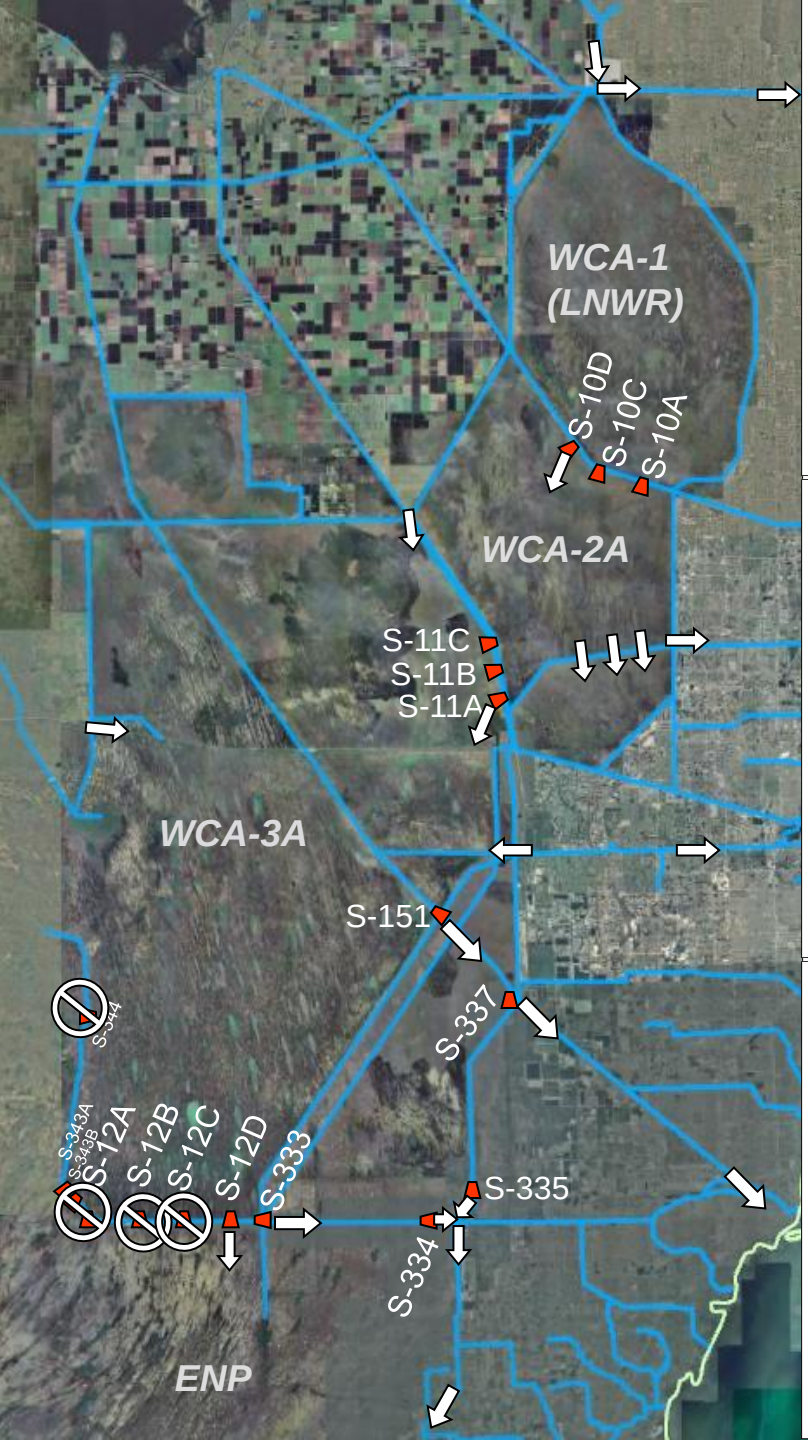
NOAA Regional Climate Centers

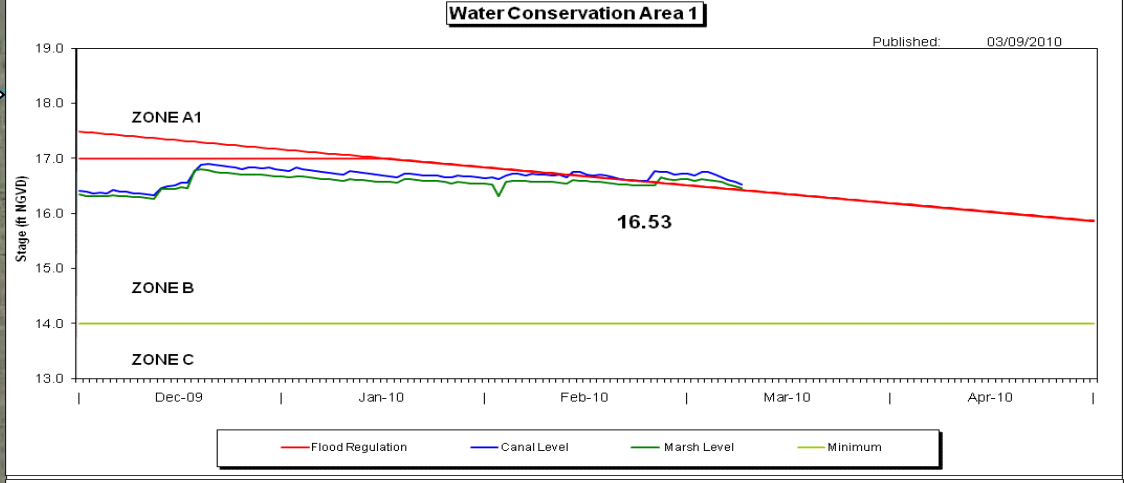

ORLANDO
FT. F
2004-05 SFWM
2006 Orange Cou
2008 Hendry Cou

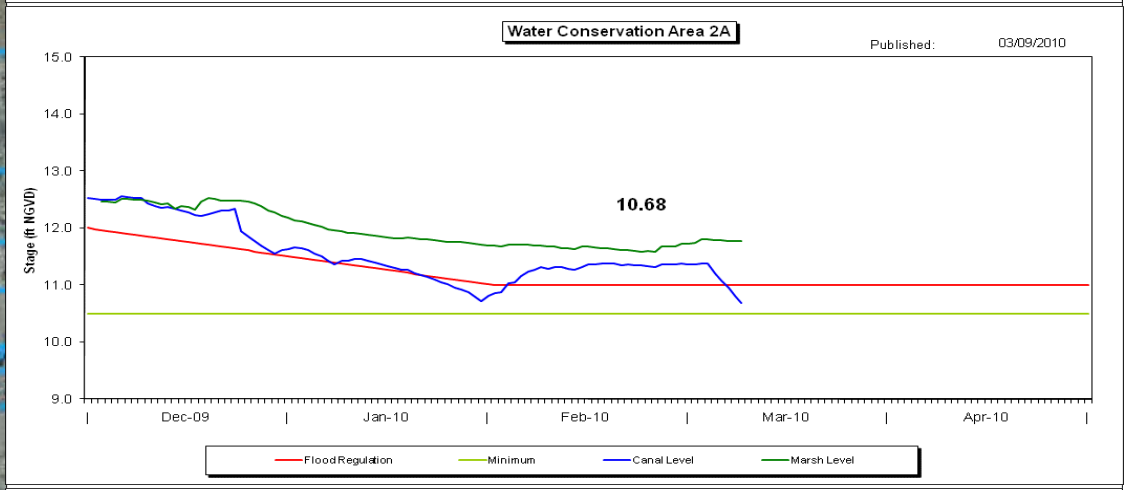

Lake Tohopekaliga
Published 3/9/2010
58.0
57.0
56.0
55.0
54.0
53.0
52.0
51.0
50.0
Stage (Ft.NGVD)
54.36
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Flood Regulation
Lake Level
Snail Kite Nesting Sched

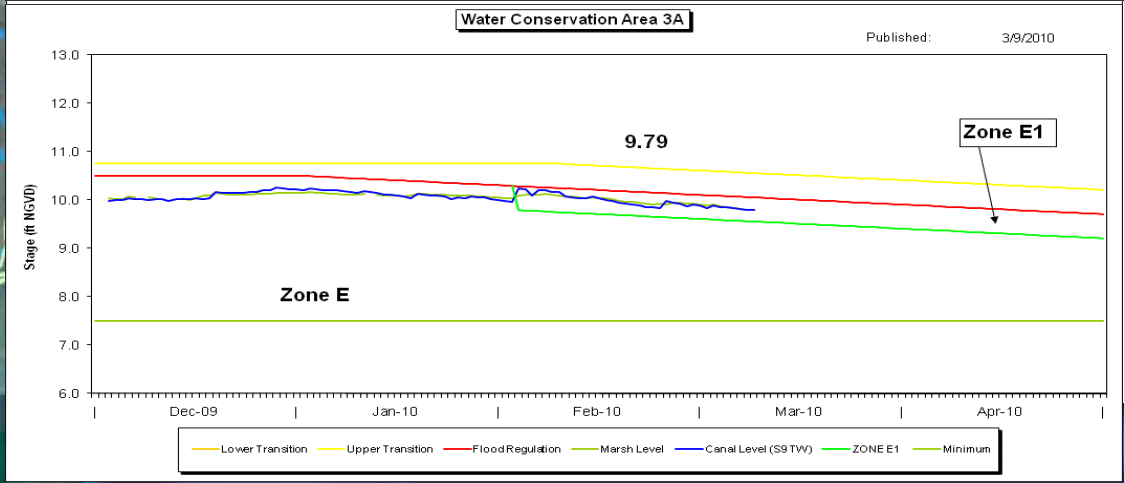

Lake Kissimmee
Published: 03/09/10
54.0
53.0
52.0
51.0
50.0
49.0
48.0
47.0
Stage (ft NGVD)
51.05
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Flood Schedule
S65 Dev Sched
S-65 HW
Lake Level


Lake Istokpoga
Published: 3/9/2010
41.0
40.0
39.0
38.0
37.0
36.0
Stage (ft. NGVD)
39.26
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Maximum
Lake Level
Zone C Pump Operation

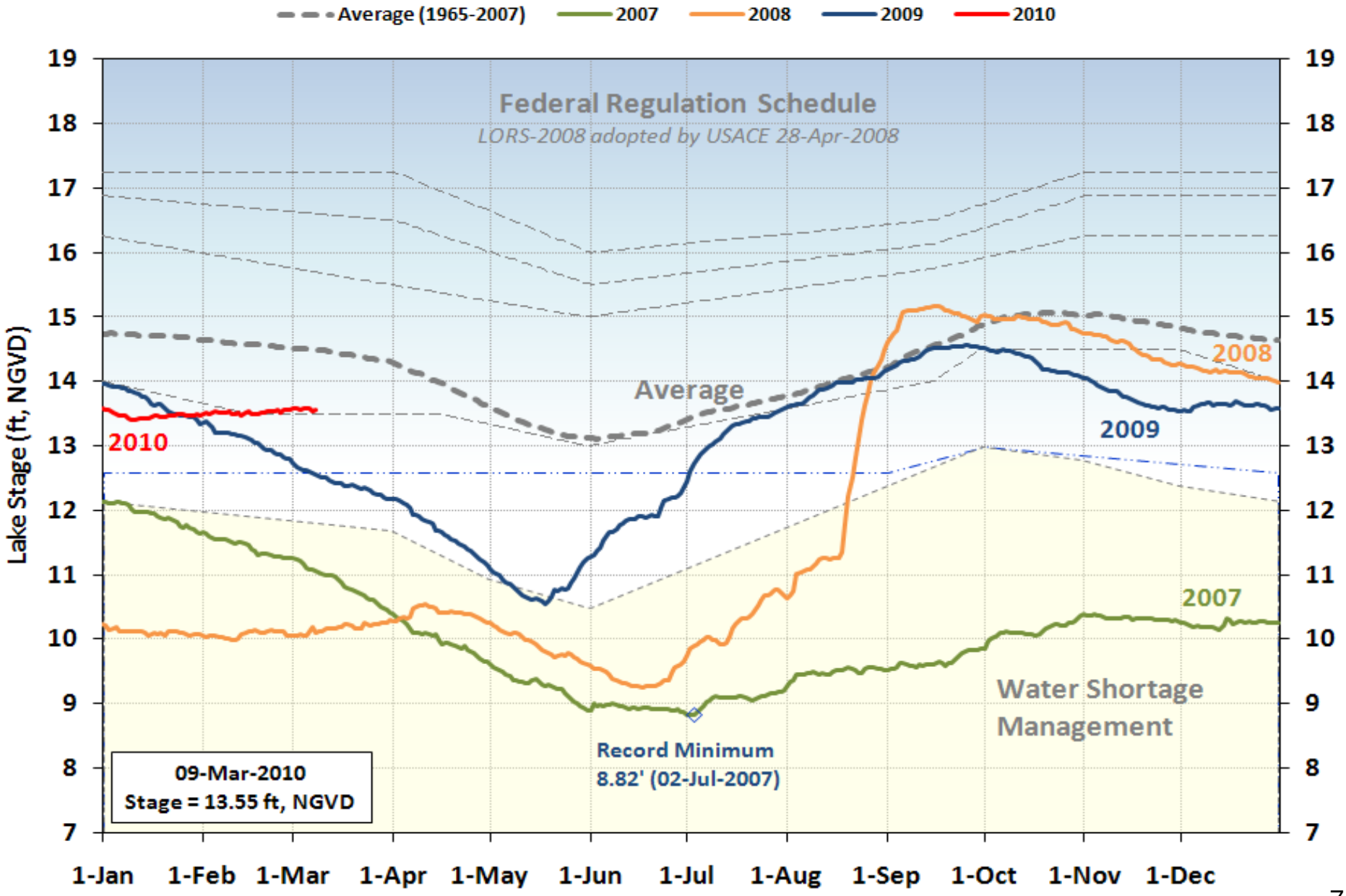

WCA-1
(LNWR)
S-10D
S-10C
S-10A
WCA-2A
S-11C
S-11B
S-11A
WCA-3A
S-151
S-337
S-344
S-343A
S-343B
S-12A
S-12B
S-12C
S-12D
S-333
S-335
S-334
ENP


Water Conservation Area 1
Published: 03/09/2010
Stage (ft NGVD)
19.0
18.0
17.0
16.0
15.0
14.0
13.0
ZONE A1
16.53
ZONE B
ZONE C
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Flood Regulation
Canal Level
Marsh Level
Minimum


Water Conservation Area 2A
Published: 03/09/2010
Stage (ft NGVD)
15.0
14.0
13.0
12.0
11.0
10.0
9.0
10.68
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Flood Regulation
Minimum
Canal Level
Marsh Level

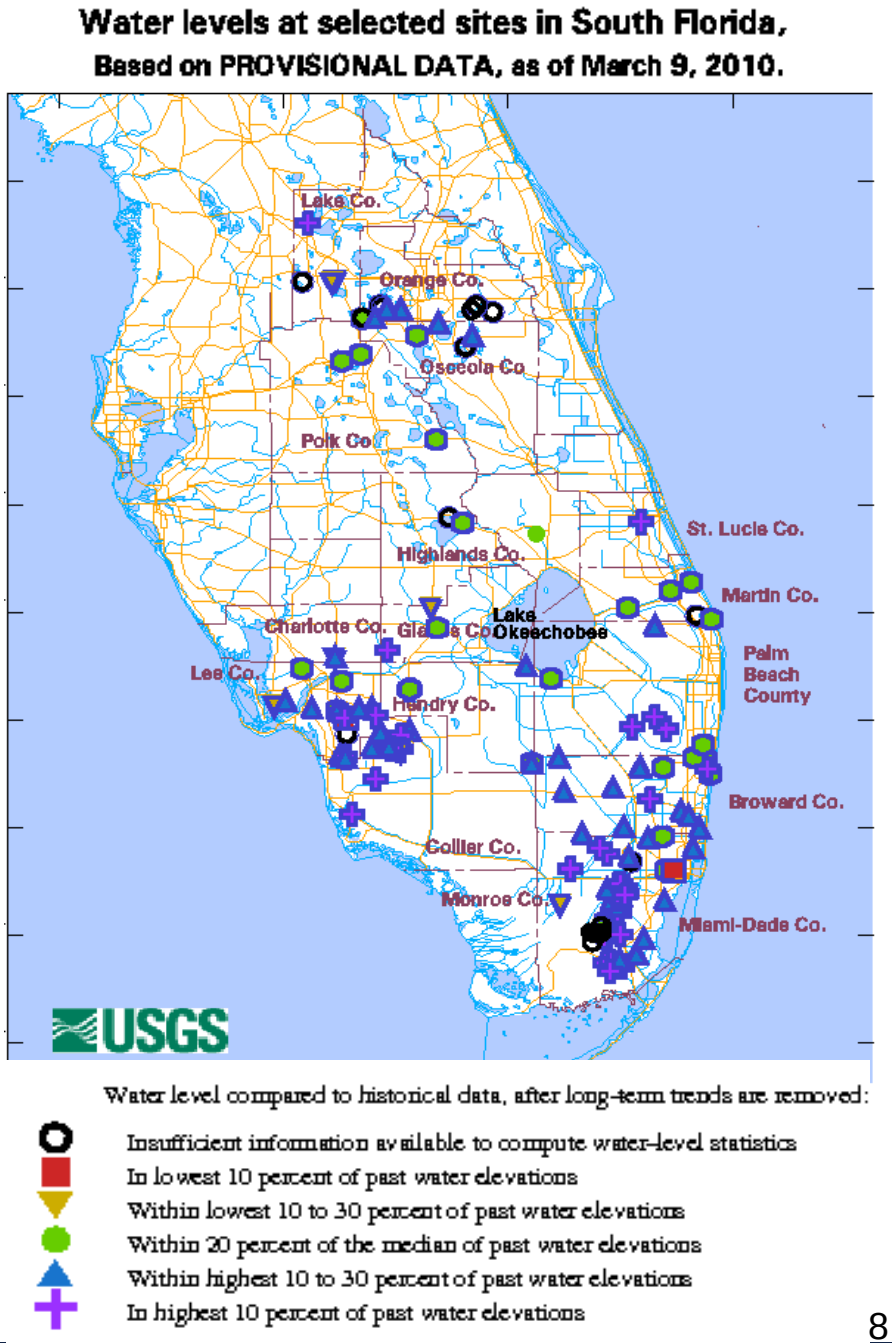

Water Conservation Area 3A
Published: 3/9/2010
Stage (ft NGVD)
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
9.79
Zone E1
Zone E
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
Lower Transition
Upper Transition
Flood Regulation
Marsh Level
Canal Level (S9 TW)
ZONE E1
Minimum

Lake Okeechobee Stage Hydrograph Comparison



Groundwater Levels & Water Supply Status

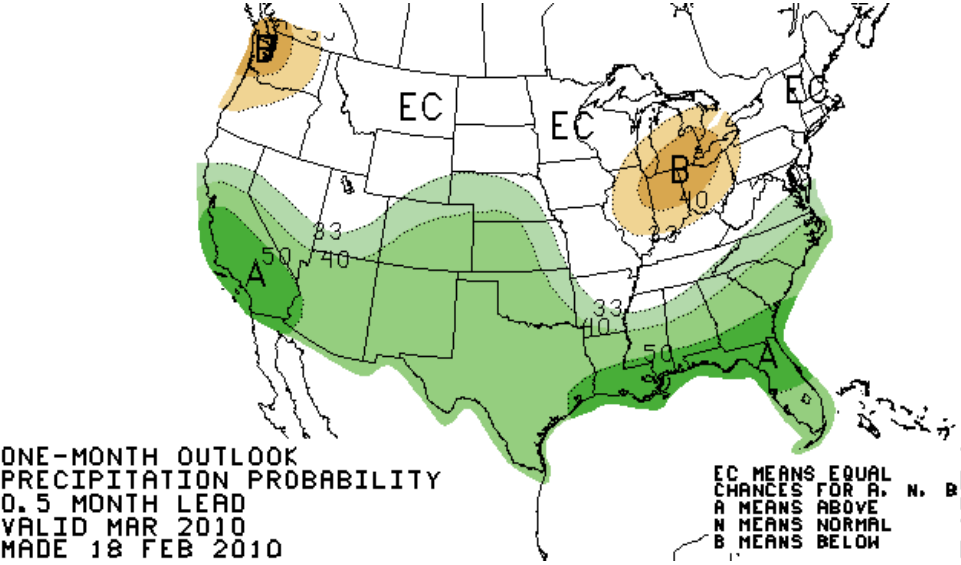
- **Most groundwater well levels dropped during the past week but remain mostly either average or above-average for this time of year**
  - Both Floridan and Surficial wells in the Kissimmee Basin are in general at the median levels or higher
  - Lower East Coast groundwater levels are generally above average along the coast and at average values further inland for the majority of wells.
  - Surficial aquifer wells in the Lower West Coast are generally at average levels expected for this time of year.
- **All water supply risk indicators remain in the "low" risk category**



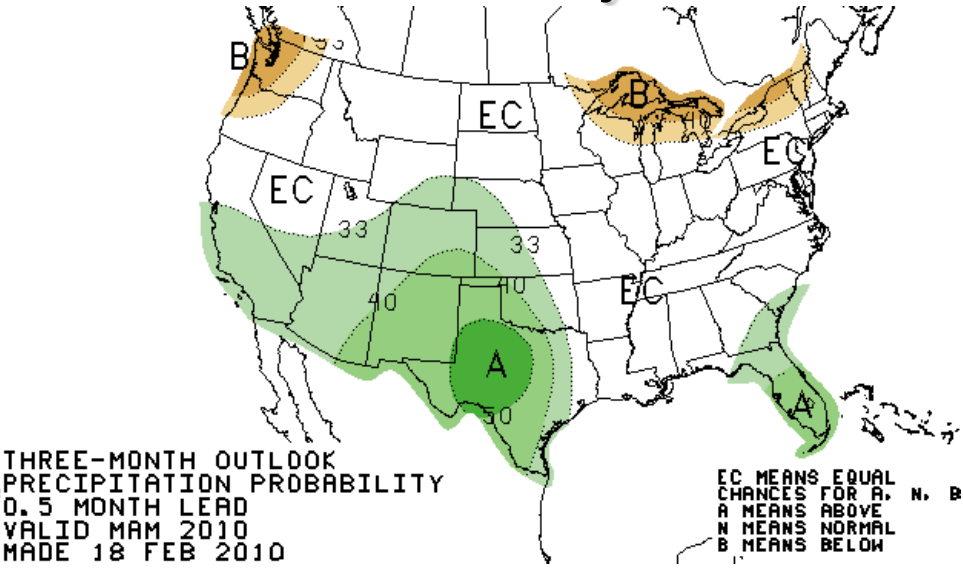
U. S. Seasonal Precipitation Outlook

National Climate Prediction Center (CPC)

March



Mar-May

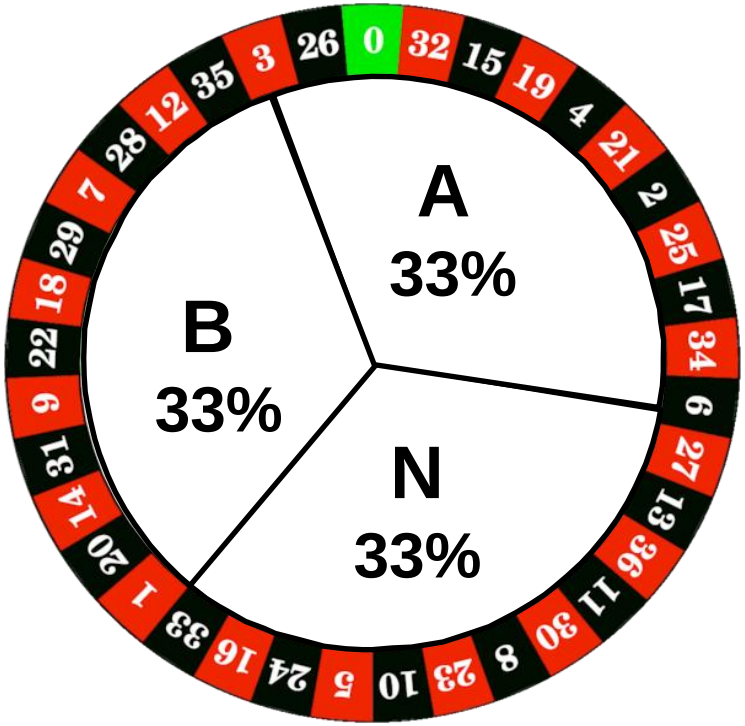


- An El Nino event continues in the tropical Pacific with monthly sea surface temps in the equatorial Pacific averaging from 1-2 degrees C above normal. El Nino conditions are expected to persist into the boreal spring, impacting U.S. surface temperature and precip outlooks for March-June (CPC outlook 18-Feb-2009)
- The outlook for March shows an increased chance of above-normal (A) rainfall for central and south Florida (~50%).
- The outlook for Mar-May shows increased chances of above-normal (A) rainfall for central (43%) and south (46%) Florida (same as Jan CPC forecast)

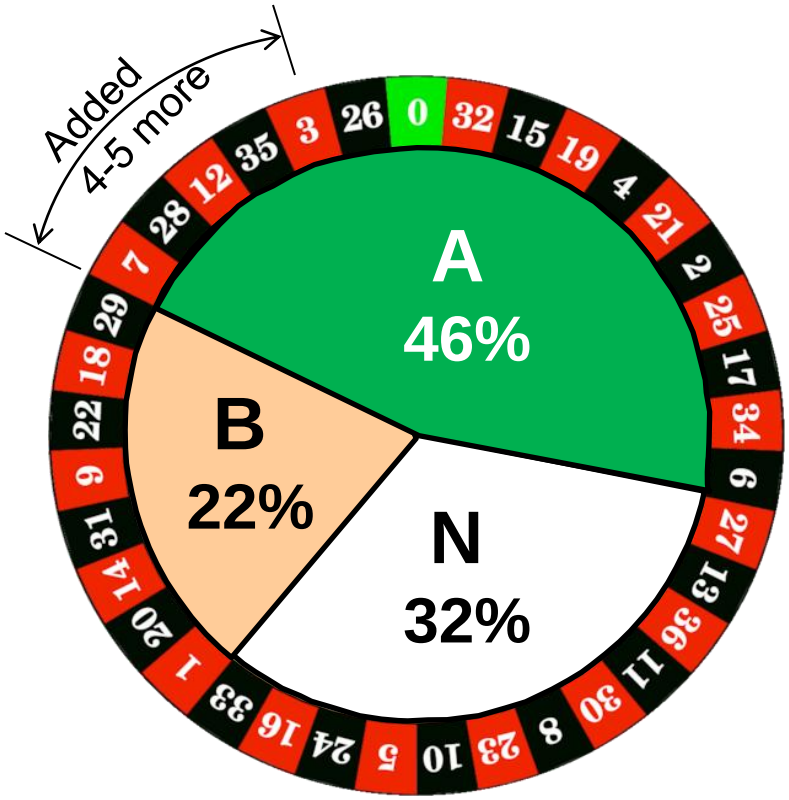
(Note: If there are no increased chances, the probability of above-normal is 33%)

Climate Outlook Probabilities

How to Interpret the CPC Precipitation Outlook



EC = Equal Chances of A, N, B

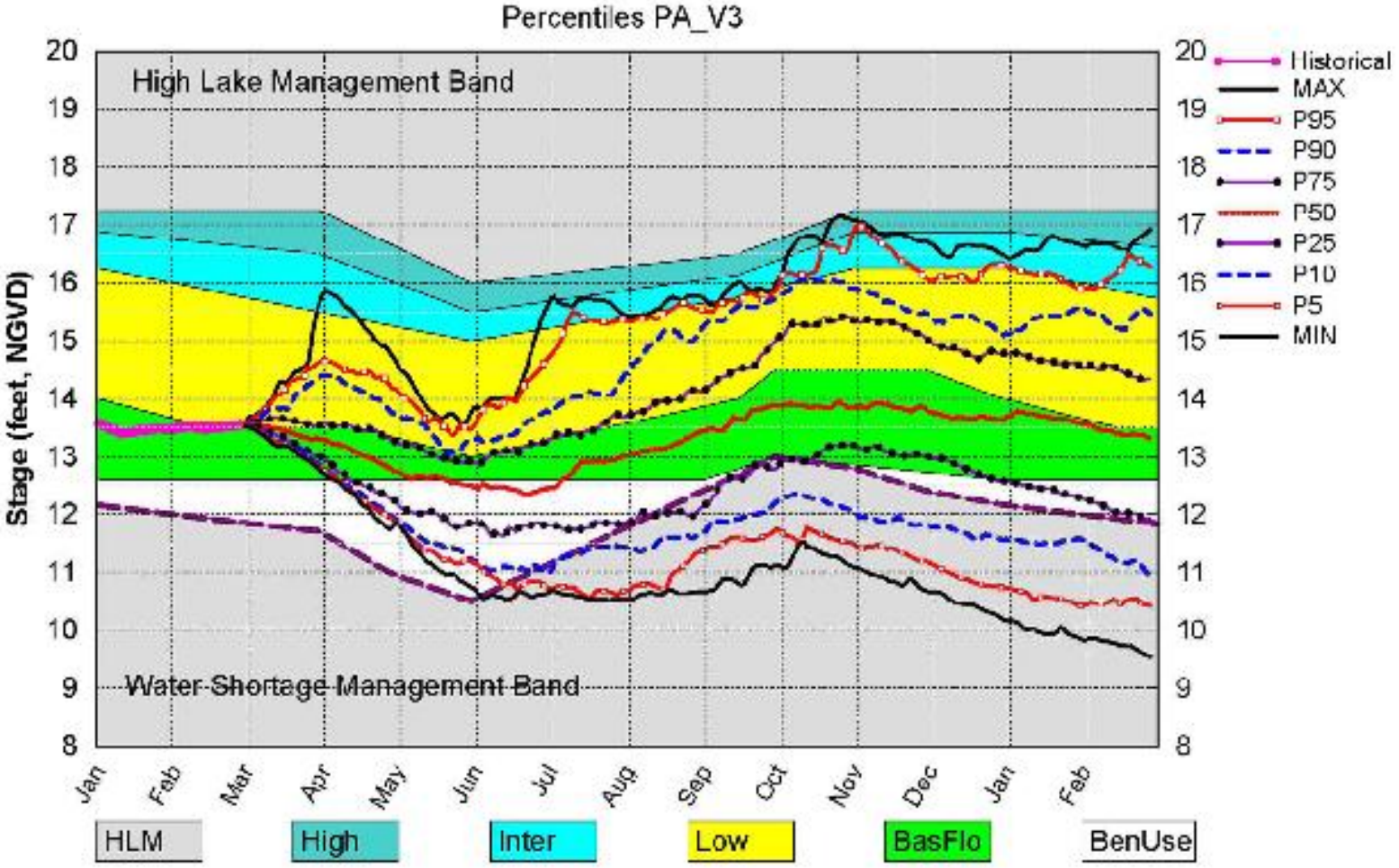


Increased Chance of Above-Normal

Lake Okeechobee Stage Forecast

- **Future Lake stage depends on future rainfall**
- **Projections provided monthly by SFWMD Hydrologic and Environmental Systems Modeling (HESM) Department**
  Don Ketprakong, Paul Trimble, Danielle Morancy, Luis Cadavid, Jayantha Obeysekera
- **Position Analysis**
  - **Each year starts with current hydrologic conditions**
  - **41 1-yr simulations of system response to historical rainfall conditions**
  - **Statistical summaries used to display projections**

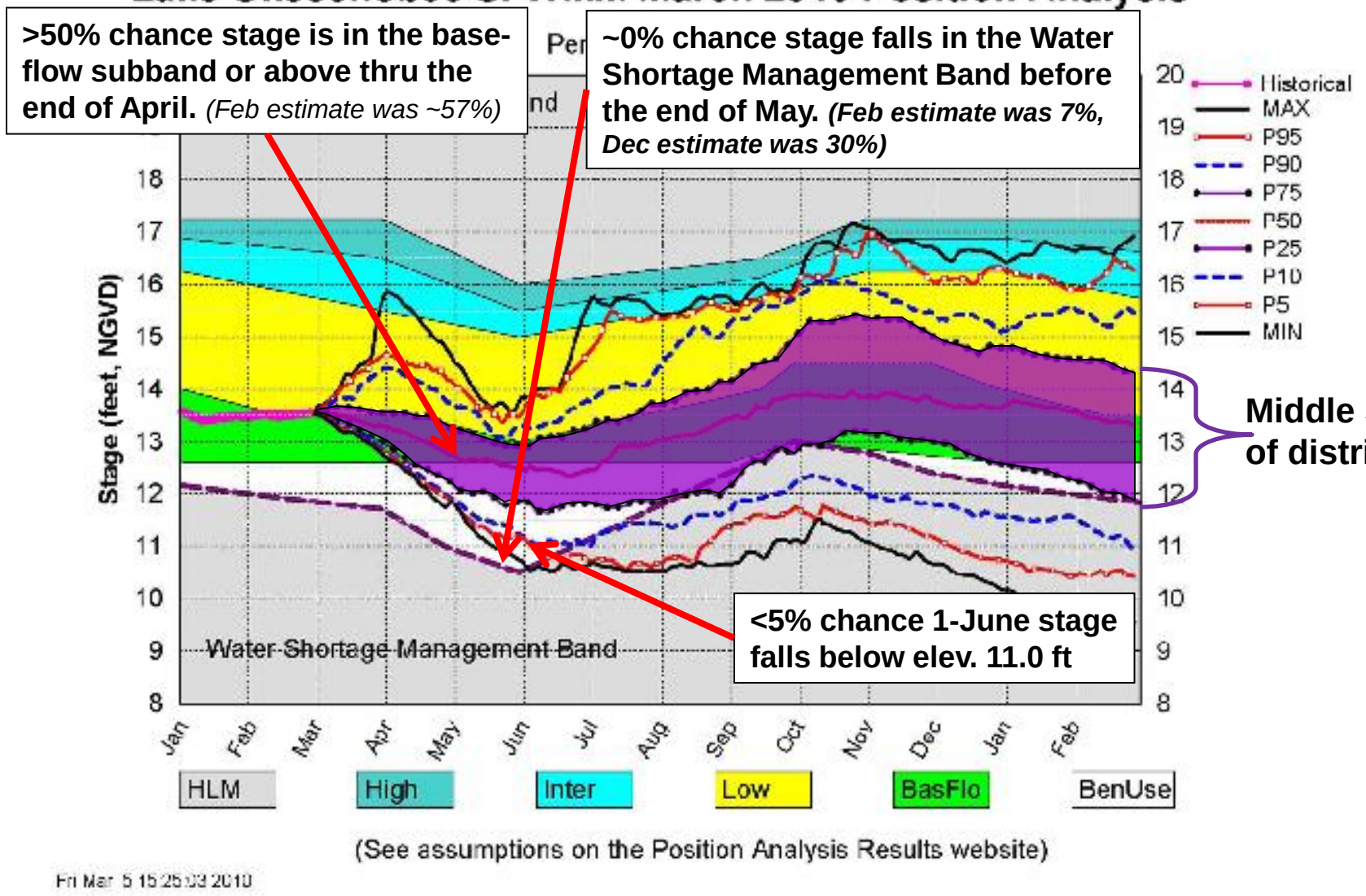
Lake Okeechobee SFWMM March 2010 Position Analysis



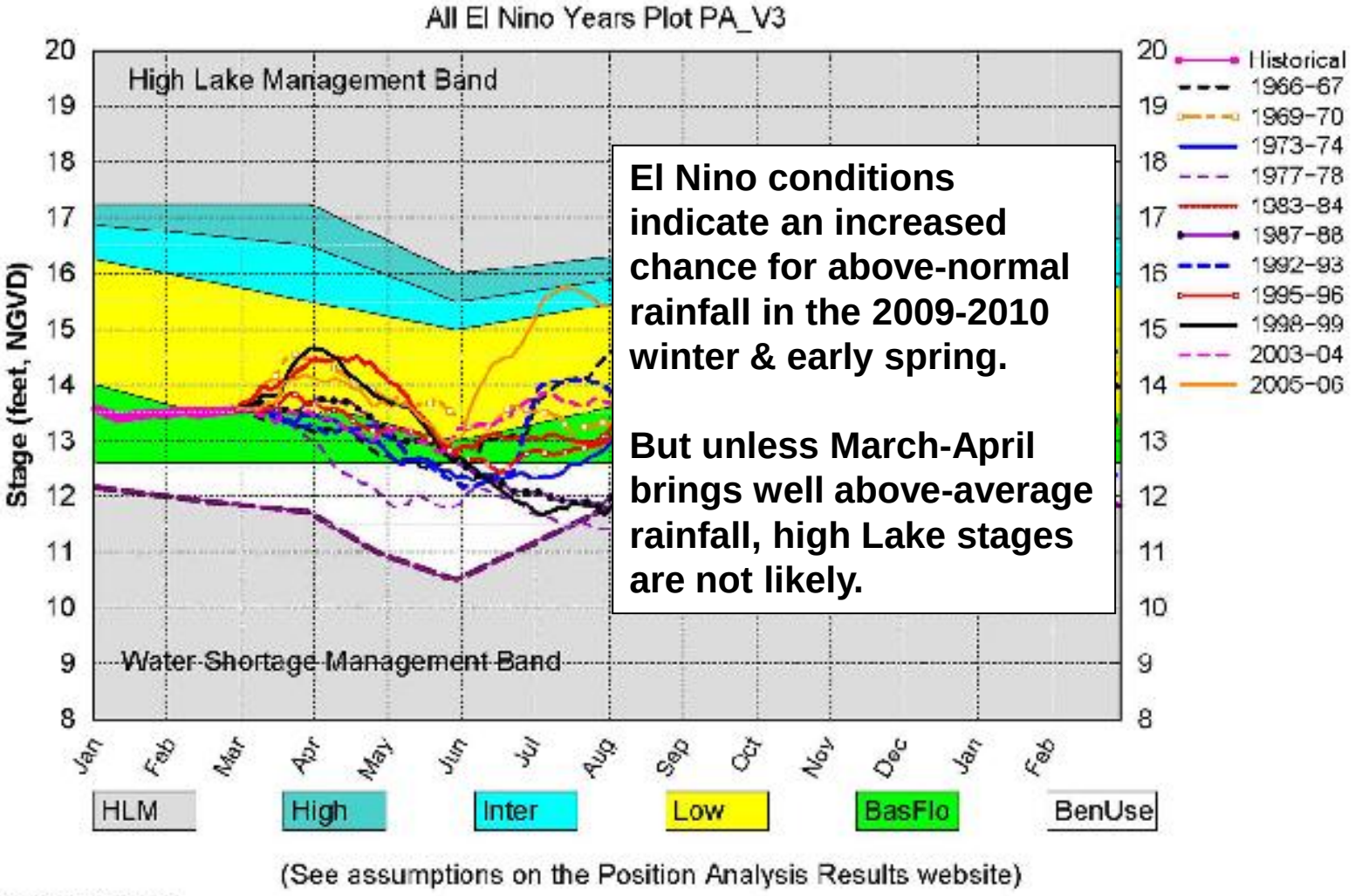
(See assumptions on the Position Analysis Results website)

Fri Mar 5 15:25:03 2010

Lake Okeechobee SFWMM March 2010 Position Analysis



Lake Okeechobee SFWMM March 2010 Position Analysis



El Nino conditions indicate an increased chance for above-normal rainfall in the 2009-2010 winter & early spring.

But unless March-April brings well above-average rainfall, high Lake stages are not likely.

(See assumptions on the Position Analysis Results website)

Fri Mar 5 15:25:28 2010

Lake Okeechobee Stage Forecast Summary

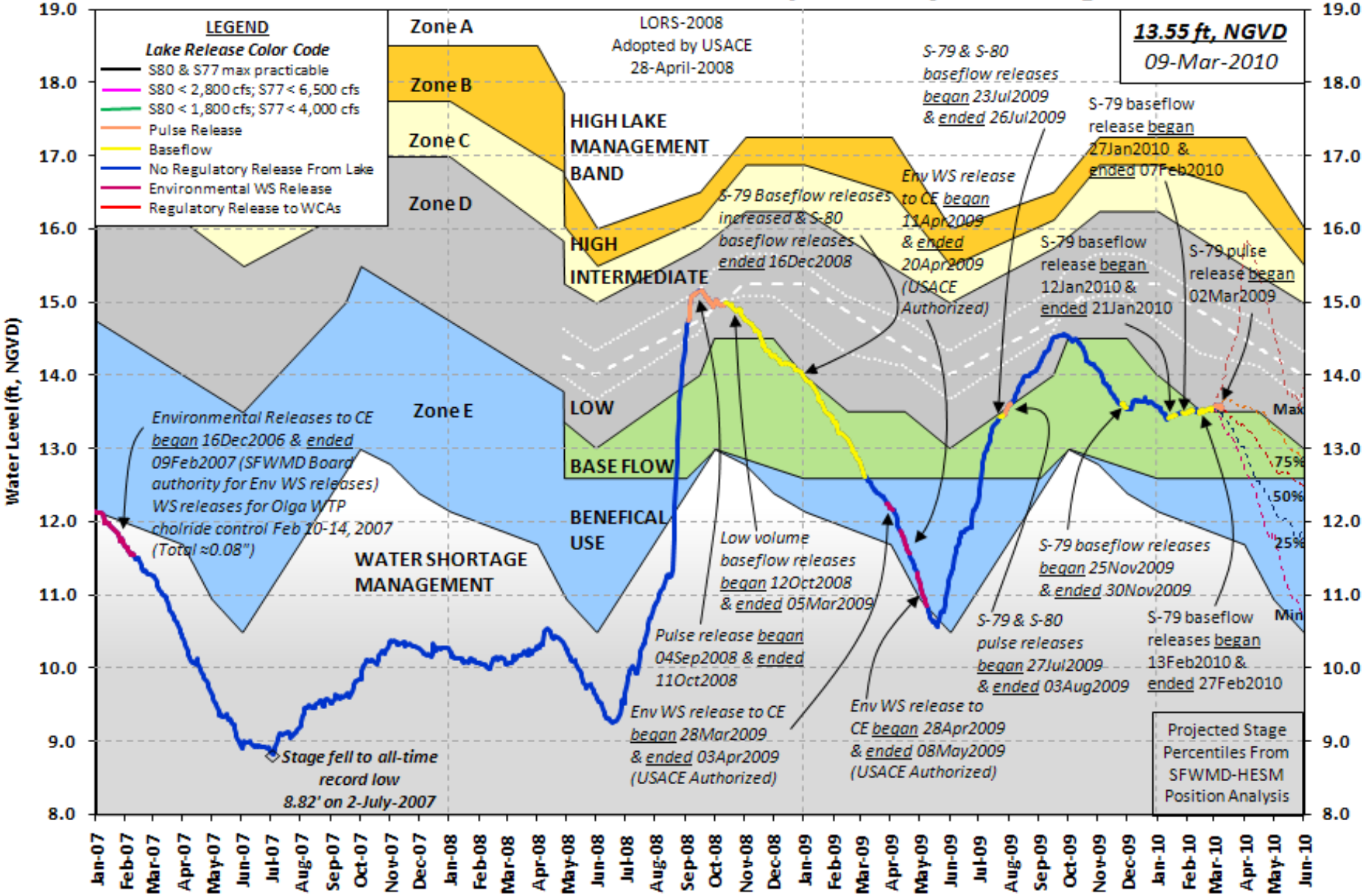
- **>50 chance Lake releases will be needed to manage Lake stages through April**
  - **>50% chance stage is in the base-flow subband or above through the end of April.**
- **Almost a zero chance of water restrictions in the Lake O Service Area this spring.**
  - **~0% chance stage falls in the Water Shortage Management Band before the end of May. (Feb estimate was 7%, Dec estimate was 30%)**
- **Low risk of water shortage means some flexibility exists to send environmental water deliveries to the Caloosahatchee Estuary, if needed.**
  - **Very low chance (<5%) the 1-June stage will fall below 11.0 ft.**

Lake Okeechobee Releases

- **On March 2, the U.S. Army Corps of Engineers initiated a 21-day release (3 x 7-day pulses) from Lake Okeechobee to the Caloosahatchee Estuary with an average daily flow of 800 cfs.**
- **Current stage is rising slowly within the low sub-band of the Lake O Regulation Schedule (LORS), & the release guidance calls for up-to 3000 cfs at S-79, up-to 1170 cfs at S-80, and no releases to the WCAs.**
- **Conditions are transitioning from those that suggest holding water to those that recommend discharging water.**
- **Summary of District staff's recommendation to the USACE:**
  - **Current Lake ecological conditions do not require a more-aggressive lake stage recession if it would result in impacts to the estuaries.**
  - **Increase current pulse releases at S-79 to an average of 1200 cfs.**
  - **Initiate pulse releases to the St. Lucie Estuary at S-80 averaging 400 cfs.**
  - **Re-evaluate system conditions next week for potential modifications to pulse discharge volumes.**

Questions?

Lake Okeechobee Water Level History and Projected Stages



U.S. Drought Monitor

Southeast

February 16, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.0	0.0	0.0	0.0	0.0	0.0
Last Week (02/09/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
3 Months Ago (11/24/2009 map)	89.4	10.6	1.5	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	99.5	0.5	0.0	0.0	0.0	0.0
Start of Water Year (10/06/2009 map)	82.6	17.4	5.5	1.0	0.0	0.0
One Year Ago (02/17/2009 map)	6.1	93.9	29.8	6.0	1.9	0.0

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

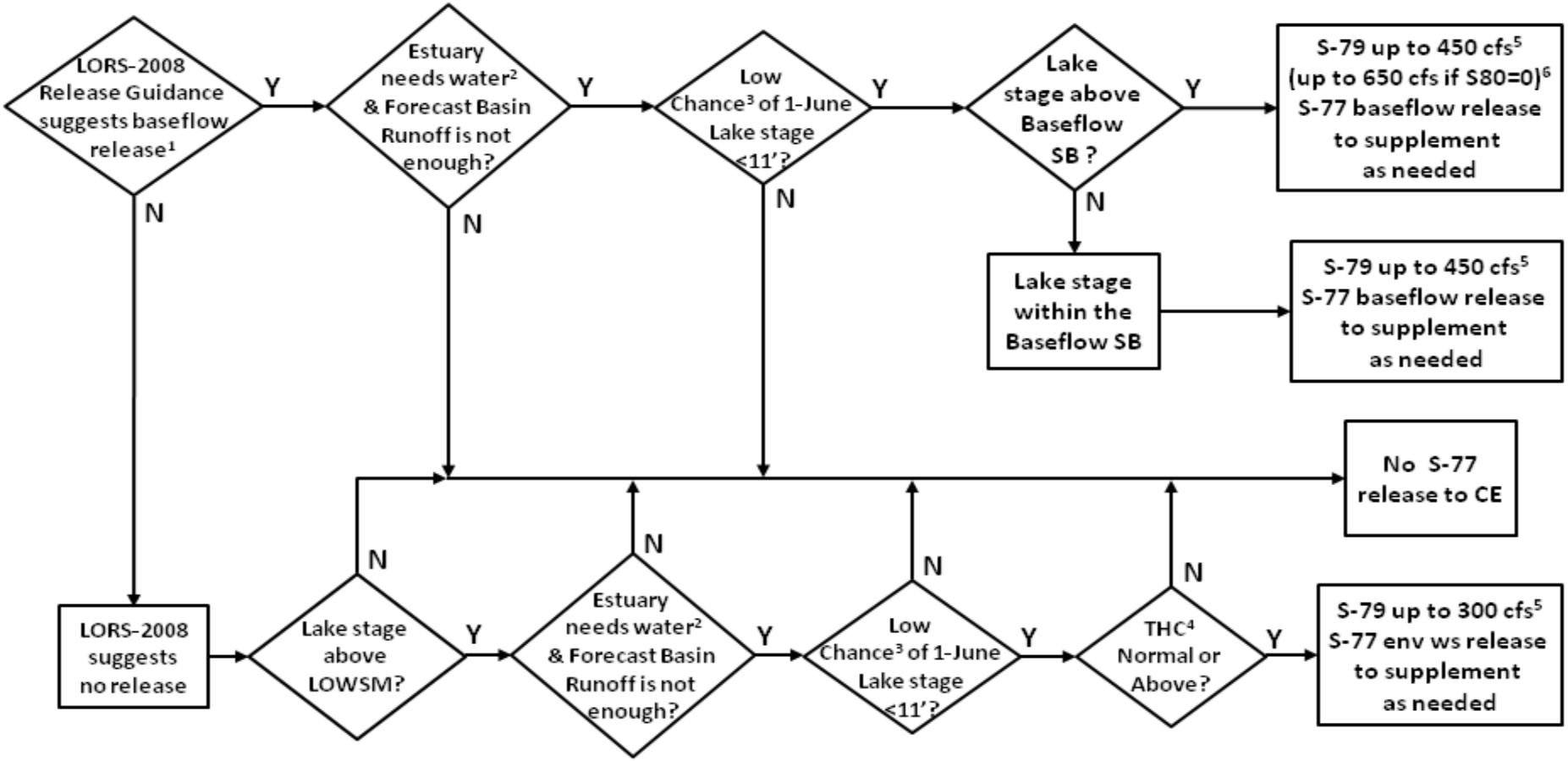
http://drought.unl.edu/dm

Released Thursday, February 18, 2010

Author: Brian Fuchs, National Drought Mitigation Center

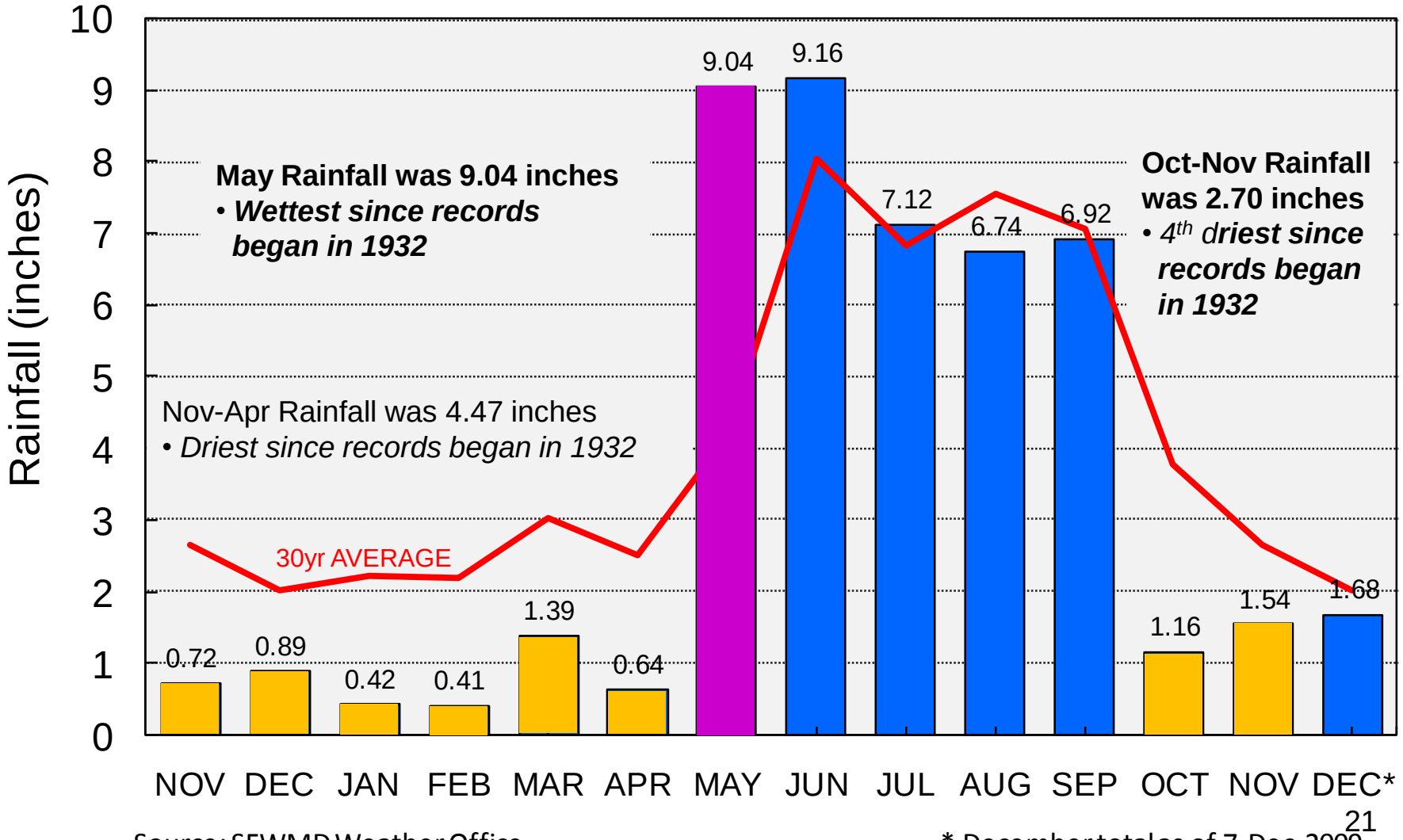
Proposed Draft
20-January-2010

Flowchart to Guide Recommendations for Lake Okeechobee Releases to the Caloosahatchee Estuary for LORS-2008 Baseflow & for Environmental Water Supply



[1]The LORS-2008 Release Guidance (Part D) can suggest baseflow releases in the Intermediate, Low, or Baseflow Subbands.
[2]For simulation testing, estuary "needs" water when 30d moving avg. salinity at I-75 bridge is projected to exceed 5psu within 2 weeks.
[3]For simulation testing, "Low chance" is defined as less than a 30% chance that the 1-June Lake stage falls below elevation 11.0', NGVD.
[4]THC = Tributary Hydrologic Condition is based on classification of Lake O Net Inflow and Palmer Index.
[5]Can release less than the "up to" limit if lower release is sufficient to reach or sustain desired estuary salinity.
[6]Based on confirmation that the St. Lucie Estuary does not need all or a portion of this baseflow

SFWMD MONTHLY RAINFALL
Nov 2008 - Dec 2009



Source: SFWMD Weather Office

* December total as of 7-Dec-2009